

c. 20 pairs, anastomising in an intramarginal nerve. Peduncle c. 40 cm long. Spathe 7.5-16 cm long, narrowly infundibular, tube 4-6 cm; limb 3.5-10.0 x 3-6 cm, ovate, arching above, acuminate, terminating in a pendant filiform tail of 4-17 cm long. Spadix 5-7 cm long, sessile, erect, cylindric. Pistillate flowers compact. Ovary subglobose, ovules 4; style short; stigma muricate. Staminal flowers scattered; anthers stalked, subglobose dehiscent by pores. Neuters present in pistillate spadix; absent in staminate spadix. Appendix cylindric, swollen in the middle, terminating in a clavate, convoluted tubercle.

**Fl. & Fr.:** April-June.

**Type:** Nilgiri Hills, Pennant Shola, Farsons Valley E. Barnes 677 (MH).

**Distribution:** INDIA: Tamil Nadu. Nilgiri district, Bangitappal.

**Ecology:** Growing at an elevation of 2,250 m on margins of Shola forests.

**Specimens Examined:** INDIA: Tamil Nadu, Nilgiri district, Pennant shola, Parsons Valley, 20.v.1933, E. Barnes 677(MH); Bangitappal, 27.iv.2001, V.S. Ramachandran and C.P. Anil Varghese 2899(KNASCH).

Earlier botanists (Gamble 1936; Sharma *et al.* 1977; Ahmedullah and Nayar 1986; Bhargavan 1989) have included this taxon as one of the endemic species highly restricted to upper Nilgiris, Nilgiri Biosphere Reserve and Peninsular India; however, authors Sharma *et al.* 1977, Ahmedullah and Nayar 1986, Bhargavan 1989 differ from one another, while assigning the threat status to the plant as rare (Bhargavan 1989), rare and threatened (Ahmedullah and Nayar 1986); in spite of rarity, and restricted occurrence, this species does not find a place in the Red Data Book of Indian Plants (Nayar and Sastry 1987, 1988, 1990). Due to its niche specificity, occurrence in isolated patches and its ephemeral nature might have led to the non location of this elegant species by earlier botanists (Sharma *et al.* 1977; Ahmedullah and Nayar 1986; Bhargavan 1989).

It differs from its allies in having: spadix cream-coloured, cylindrical with subglobose convoluted, spathe with distinguishing characters – dark purple with 5-7 white bands. It is suggested that this species is a potentially threatened plant, and should be considered for inclusion in the Red Data Book of Indian Plants (Nayar and Sastry 1987, 1988, 1990).

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#### 18. NEW RECORDS OF ORCHIDS FROM ANDHRA PRADESH, INDIA-I<sup>1</sup>

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Floristic survey for orchids was taken up in the east Godavari and Visakhapatnam districts of Andhra Pradesh during November 1994 and October 2005 under an All India Coordinated Research Project on Taxonomy Capacity Building of Orchids, sponsored by the Ministry of Environment and Forests, Government of India. During this survey, 35 orchid

species were collected and identified. Voucher specimens were deposited with the herbarium of Regional Plant Resource Centre (REPRECENT), Orissa. The live plants are being maintained in the orchidarium of the Regional Plant Resource Centre. Roxburgh (1795), Elliot (1859), Beddome (1874), J.D. Hooker (1888-1890) and Fischer (1928) in their works did

not report these species from Andhra Pradesh. Ramakrishnan (1997) has not reported these species in his compilation.

During a study of literature and herbaria of the Central National Herbarium (CAL) and Andhra University (AU), six taxa were noted to be new records for Andhra Pradesh. The correct nomenclature, short diagnostic characters, phenology of flowering, ecology, locality, frequency, distribution of these are highlighted.

***Acampe rigida*** (Buch.-Ham. ex J.E. Sm.) Hunt., Kew Bull. 24: 98. 1970; Misra, Orch. Orissa: 587. 2004. ***Aerides rigida*** Buch.-Ham ex J.E. Smith in Rees, Cyclopaedia 39(78). 1819. ***Saccolabium longifolium*** (Lindl.) J.D. Hook., F.B.I. 6: 62. 1890.

Erect, very robust epiphyte. Inflorescence leaf-opposed erect, rigid, racemose, with one or two short branches. Flowers not wide-opening; perianth fleshy, pale yellow. Lip white, three-lobed, with a large purple blotch within. Column short with two terminal, anterior, back-turned horns.

**Fl.:** August-September.

**Specimen Examined:** Bodhuluru (East Godavari); TOB 0125.

**Habitat:** Moist deciduous or semi-evergreen, thick forests.

**Frequency:** Rare.

**Distribution:** India, Bhutan, Myanmar, China, Thailand, Cambodia, Malaysia, Philippines, Sri Lanka, Kenya, S. Africa, Madagascar and Comoro Islands.

***Dendrobium moschatum*** (Buch.-Ham.) Sw., Schrader Neu. J. Bot. 1: 94. 1806; Misra, Orch. Orissa: 427. 2004. ***Epidendrum moschatum*** Buch.-Ham. in Syme, Emb. Kingd. Ava, ed. 1: 478; with fig. 1800. ***Dendrobium calceolaria*** Carey ex Hook., Exot. Fl. 3: t. 184. 1827; Hook.f., F.B.I. 5: 744. 1888.

Stems tufted, much elongated. Inflorescence one or two, from a node nearing the apex, usually drooping. Flowers spreading, peach-coloured, musk-scented. Lip clawed, shorter than the petals, pyriform, forming an open-mouthed pouch, with broadly incurved edges, margin undulate; two large maroon blotches below the middle within.

**Fl.:** May-June.

**Specimens Examined:** Darakonda (Vishakhapatnam); SM 1970; Bodhuluru (East Godavari); TOB 0093.

**Habitat:** Moist deciduous forests, 600-800 m.

**Frequency:** Scarce.

**Distribution:** India, Nepal, Bhutan, Thailand, Bangladesh, Myanmar, China and Laos.

***Geodorum recurvum*** (Roxb.) Alston in Trimen, Fl. Ceylon 6: 276. 1931; Misra, Orch. Orissa: 554. 2004. ***Limodorum recurvum*** Roxb., Corom. Pl.: 33. 1795 et Fl. Indica 3: 469. 1832. ***Geodorum dilatatum*** R. Br. in W.T. Aiton, Hort. Kew. ed. 2, 5:

207. 1813; J.D. Hook., F.B.I. 6: 17 (in part). 1890.

Plants with ovoid, compressed, greenish-brown corms. Inflorescence lateral, from base of the newly developed shoots; raceme sub-corymbose, with 6-12 closely set flowers. Flowers white. Lip sessile on the base of the column, white with pink, yellow and brown blotches.

**Fl.:** May-June

**Specimens Examined:** Opposite Medicinal Plant Conservation Area (East Godavari); TOB 0108; Kotapalli (Visakhapatnam); TOB 0108A.

**Habitat:** Moist deciduous open forests, as undergrowth, in moderate shade; with well drained loamy or clayey-loamy soil.

**Frequency:** Occasional.

**Distribution:** India; apparently endemic.

***Habenaria diphylla*** Dalz., Hook. J. Bot. 2: 262. 1850; J.D. Hook., F.B.I. 6: 151. 1890; Misra, Orch. Orissa: 205. 2004.

Terrestrial tuberoid herbs. Inflorescence terminal, 20-30 cm. long, laxly many-flowered. Flower greenish-white, shortly stalked. Lip three-partite, segments filiform; lateral segments much longer than the middle, apices deflexed; spur inflated.

**Fl.:** October.

**Specimen Examined:** Anantagiri (Visakhapatnam); V. Seshavatham; sine no. (AU).

**Habitat:** Moist deciduous forest, 900 m, on hill slope; medium shade, well drained, sandy or loamy soil.

**Frequency:** Rare.

**Distribution:** India, Nepal, Bhutan, Bangladesh, Myanmar, China, Thailand, and Philippines.

***Nervilia infundibulifolia*** Blatt. & McC., J. Bombay Nat. Hist. Soc. 35: 735. t.3. 1932; Misra, Orch. Orissa: 238. 2004.

Tiny single-leaved plants with globose corms; stolons short, one or two. Leaf prostrate, sub-orbicular, 7-veined. Inflorescence one-flowered. Flower horizontal, mildly sweet-scented. Sepals and petals spreading, linear-lanceolate, sub-similar. Lip three-lobed about the middle; lateral lobes oblong-ovate; apical lobe obovate; disc with three unequal, wavy ridges.

**Fl.:** June.

**Specimen Examined:** Wongasava coffee plantation (Visakhapatnam); TOB 0111.

**Habitat:** Moist deciduous forest, 800 m, on slopy ground, rocky soil with shade.

**Frequency:** Scarce.

**Distribution:** India and Thailand.

***Vanilla walkeriae*** Wight, Ic. Pl. Ind. Or. 3(2): 12. t.932. 1844-45; Hook.f., F.B.I. 6: 1890; Fischer in Gamble, Fl. Pres. Madras: 1451. 1928.

*Vanilla wightiana* Lindl. sensu R.S. Rao & S. Sudhakar, Bull. Bot. Surv. India 26(3-4): 197-200. 1984; sensu, Ramakrishnan 1997:960.

Climbing terrestrial plants, with tendrillar roots. Inflorescence axillary, 8-16 flowers, in dense, simple raceme. Flowers light green, white with pinkish tinge at the base of lip. Lip indistinctly, three-lobed, infundibular.

**Fl.:** March-April.

**Specimen Examined:** Surampalem, Rajavomangi reserve forest (East Godavari); R.S. Rao 10193 (AU).

**Habitat:** Dry scrublands; climbing over small, thorny bushes.

**Distribution:** India, Sri Lanka.

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### 19. *BARLERIA LUPULINA* LINDL. (ACANTHACEAE) – AN ADDITION TO THE FLORA OF ORISSA, INDIA<sup>1</sup>

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#### Introduction

As a part of the project on "Biodiversity characterization at landscape level using Remote sensing and Geographical Information System" in Orissa, the forests of Similipal Biosphere Reserve were surveyed during the period from December 2004 to March 2006. During the course of the survey, the authors came across interesting specimens of a species. After critical examination (Mudgal *et al.* 1997) and consultation with the specimens deposited at the Central National Herbarium (CAL), Kolkata, they were identified as *Barleria lupulina* Lindl.

It finds no mention in the flora of Orissa (Saxena and Brahmam 1989; Saxena and Brahmam 1996; Mishra *et al.* 1999; Reddy and Pattanaik 2006), and is being recorded for the first time.

***Barleria lupulina*** Lindl. in Edwards., Bot. Reg. 18: t.1483. 1832-1833; Clarke in Hook.f., Fl. Brit. India 4: 482. 1884; Mudgal, Khanna & Hajra in Fl. Madhya Pradesh 2: 292. 1997.

**Family:** Acanthaceae

Undershrubs up to 1 m; young branches tetragonous. Leaves linear-lanceolate, oblanceolate or narrowly elliptic, 5-10 x 0.5-1.5 cm, rigidly coriaceous, glabrous, dark green with red midrib, pale beneath, shortly petiolate; axillary spines in pairs. Spikes erect or nodding 5-8 cm long; bracts broadly obovate, erect, imbricate, green with a purple upper half, thinly pubescent, glands cupular, on the back of the lower half. Calyx lobes 1.0-1.5 x 0.5-0.7 cm, ovate, pubescent; shortly aristate. Corolla lobes 3.5-4.5 cm, subequal, yellow. Stigma bifid. Capsule c. 1.5 cm long, ovoid, compressed, beak rigid. Seeds appressed hairy.

**Habitat:** Rare, in fringes of Sal dominated moist deciduous forests, in the marshy canal bank.

**Fl. & Fr.:** December-February.

**Specimen Examined:** Orissa, Mayurbhanj district, Rangamatia, 14.i.2005, Biswal & Mohapatra 266 (North Orissa Univ. Herbarium).

**Illustration:** Mudgal *et al.* 1997 (*l.c.*).